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S461/T

SONDA DI TORBIDITA' A INFRAROSSI
INFRARED TURBIDITY PROBE

MANUALE TECNICO / TECHNICAL MANUAL

P/N: .....

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Techingenium

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S461T Infrared Turbidity Probe

Data Sheet

The **S461/T probe** is used for the optical measure of turbidity in pure and process waters up to 4000 NTU.
The probe uses the 90° scattered light method.

Applications

- Measure of turbidity in wastewater
- Measure of turbidity in primary, industrial, recirculating water

Features and benefits

- Reliable concentration measurement using optical measuring process
- Infrared light pulsing beams scattering method
- Black rigid PVC and AISI 316 sensor body
- No mechanically moving parts
- Measured value pre-processing in sensor resulting in low signal transmission sensitivity
- Immediate installation and easy manteinance

Turbidity measurement with the 90° scattered light method

By turbidity we mean the scattered component of a light beam which is diverted away from its original course by optically denser particles in the medium e.g. solid matter particles.
Measurements are made using the standardised 90° scattered light method in accordance with ISO 7027 / EN 27027. The measuring method is based on the Tyndall effect.
The turbidity of the medium is determined from the amount of scattered light. The transmitted infra-red light beam is scattered by the particles in the medium.
The scattered beams are measured by scattered light receivers which are fixed at an angle of 90 to the
transmitted light. The measured scattered light signals are converted to frequency signals.
The frequency signals are assigned to corresponding turbidity units and solid matter concentrations,
and appear in the display.

Principle of 90° scattered beam Measurement:

$$I_s = I_0 \cdot A \cdot C \cdot f(\alpha)$$

I_0 = *Intensity of transmitted light*

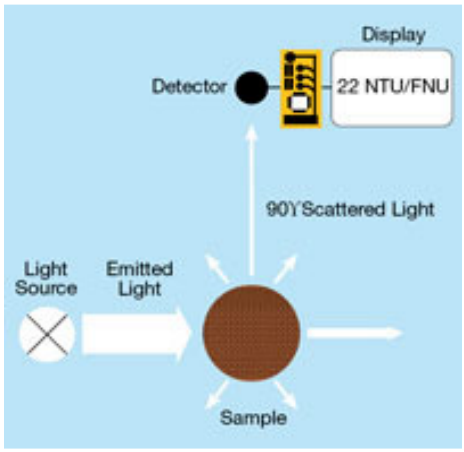
I_S = *Intensity of scattered light*

A = Geometrical factor

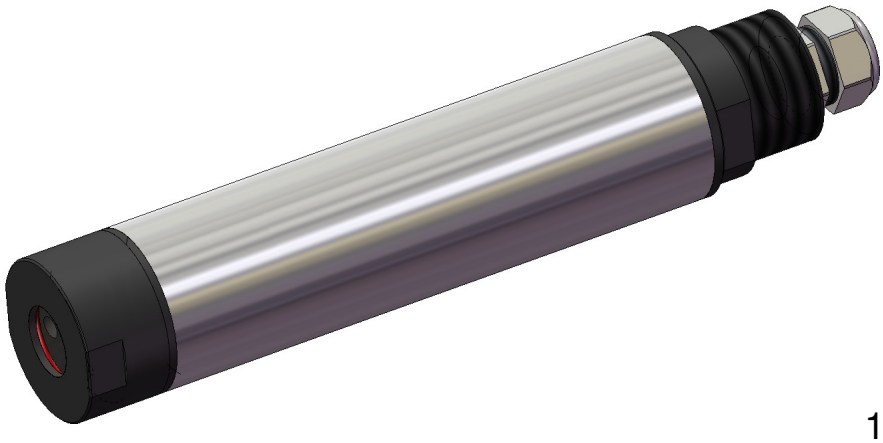
C = Concentration

f(α)= Angle correlation

P = Particle



Composition of the supply


1

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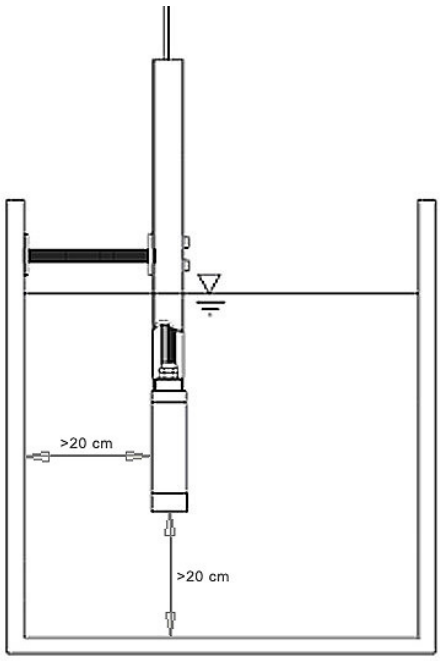
The supply consists of a single package containing the following parts:

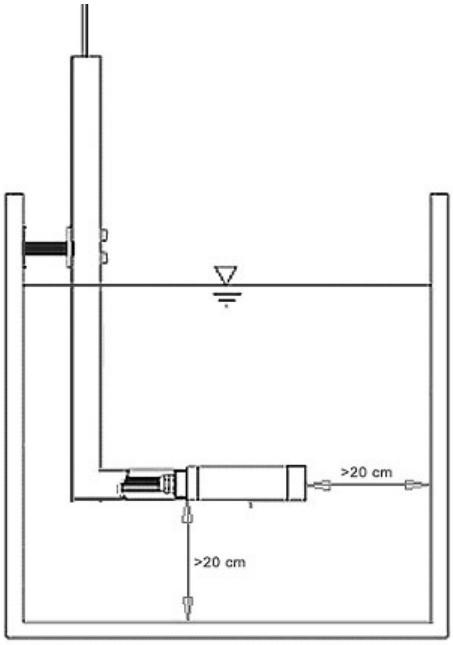
1. 1 S461/T Sonda Torbidità ad infrarossi con 10 metri di cavo
2. 1 Technical manual for instruction

Installation in tank



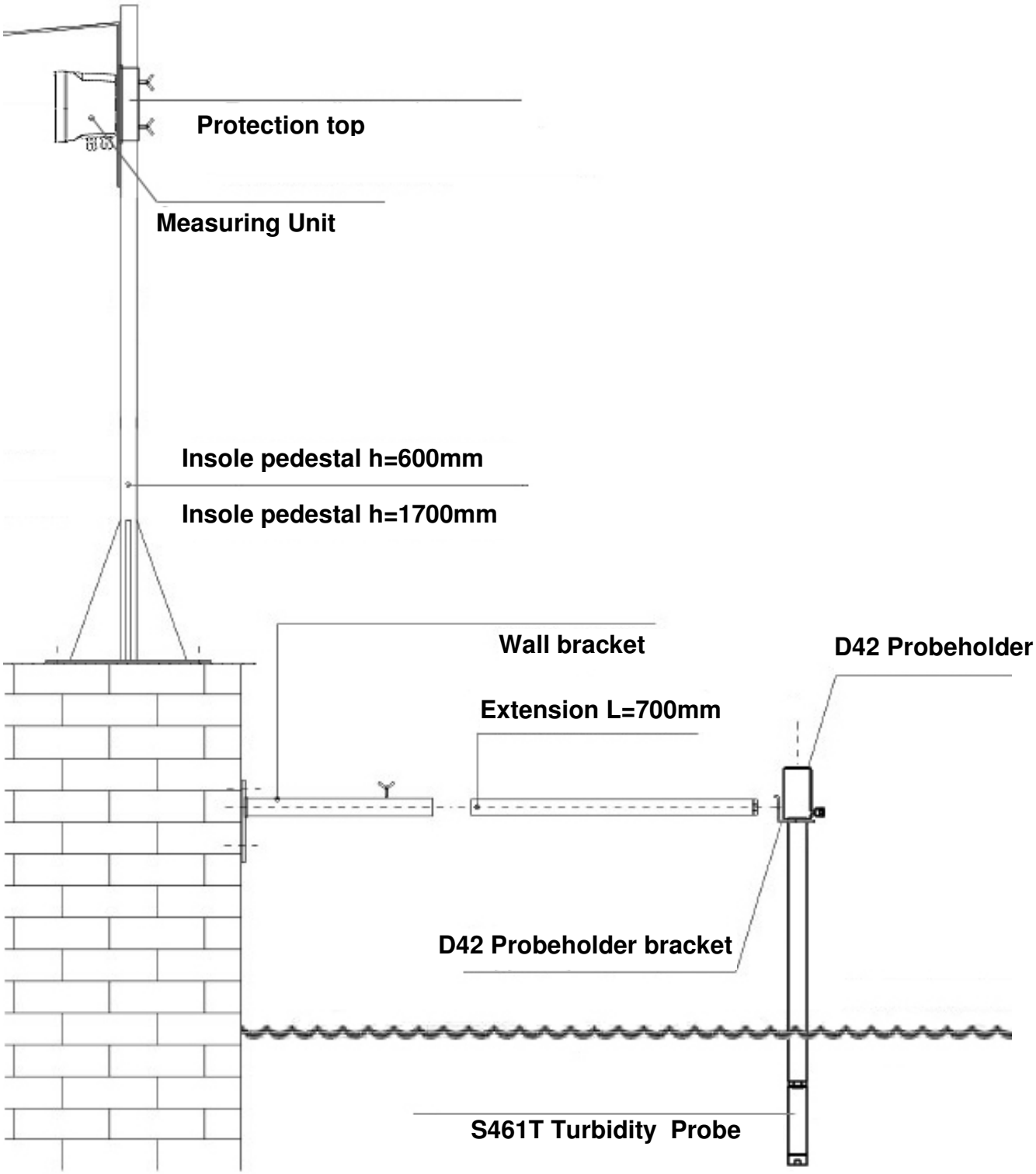
Install the probe in the tank so that it is immersed for at least 20 cm and the distance from the walls and the bottom of the tank is not less than 20 cm.

Installation in channel



Install the probe in the channel so that it is immersed for at least 20 cm and the distance from walls and bottom of the channel is not less than 20 cm.

Anchoring to poolside devices

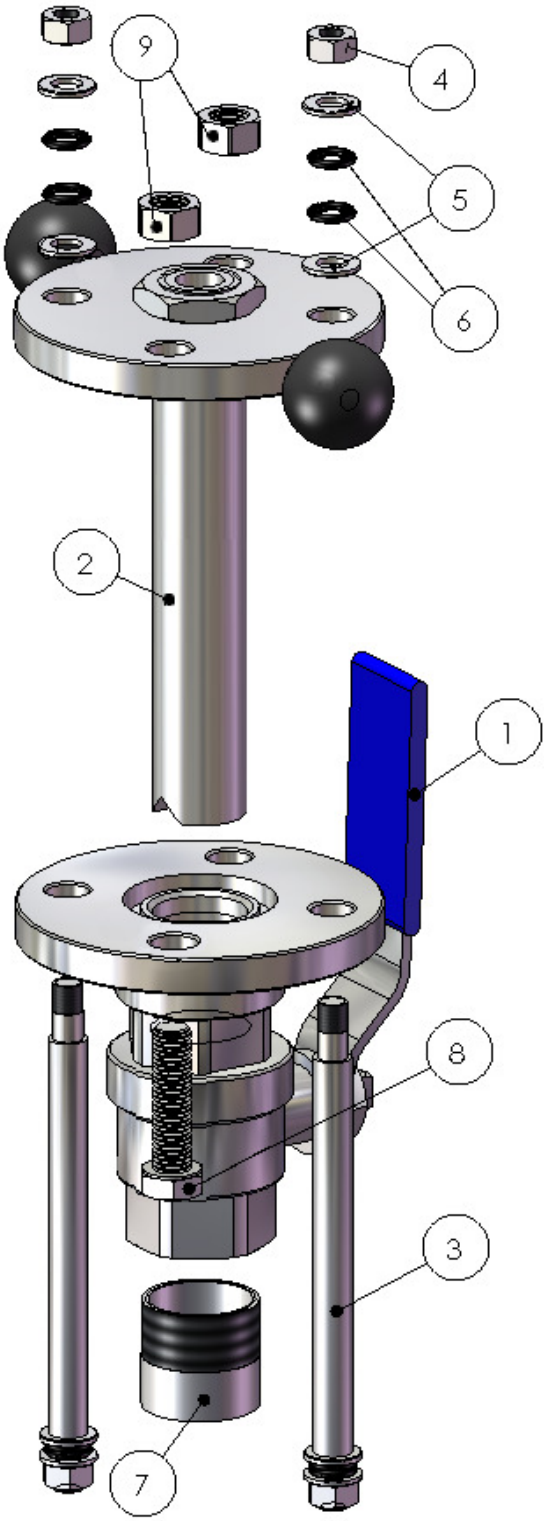


Insertion in pipeline devices

Insertion probeholder
Code 9700740060

Nomenclature of the parts included in the delivery:

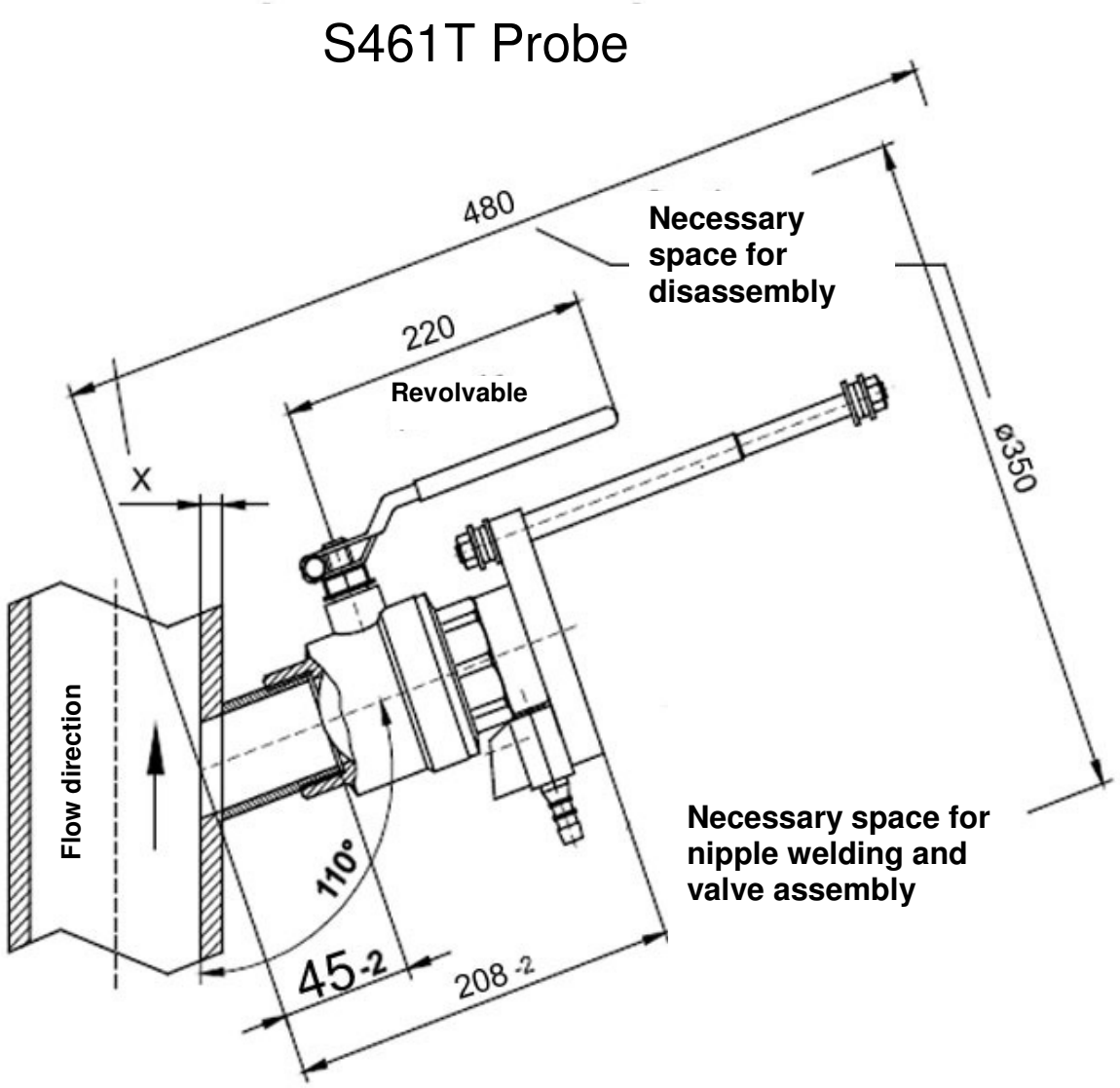
1. Valve ensemble
2. Probe ensemble
3. Stop Pole (2)
4. M12 Nut (4)
5. 12 Washer (8)
6. O-ring 4050 (8)
7. AISI 316 weld socket
8. M16x60 Bolt (2)
9. M16 Nut (2)



Instructions for a proper assembly:

Unscrew the socket (**7**) from the valve ensemble (**1**) and weld it on the pipe.
Unscrew the two M16x60 bolts (**8**) from their respective nuts (**9**).
Unscrew the two superior M12 nuts (**4**) from the stop poles (**3**) and remove the superior washers (**5**) and O-rings (**6**).
Then inserti the probe ensemble (**2**) into the valve unit (**1**) until aligning the two flanges and the corresponding holes of the two blocks.
Let the stop poles (**3**) pass through the holes of the probe ensemble and then reinsert superior washers (**5**) and O-rings (**6**), then screw the M12 superior bolts (**4**) to the stop poles (**3**). Repeat this procedure with the M16x60 bolts (**8**), then tighten the corresponding M16 Nuts (**9**).

Precautions for installation in pipeline



Attention: measures refer to the inside part of the pipe

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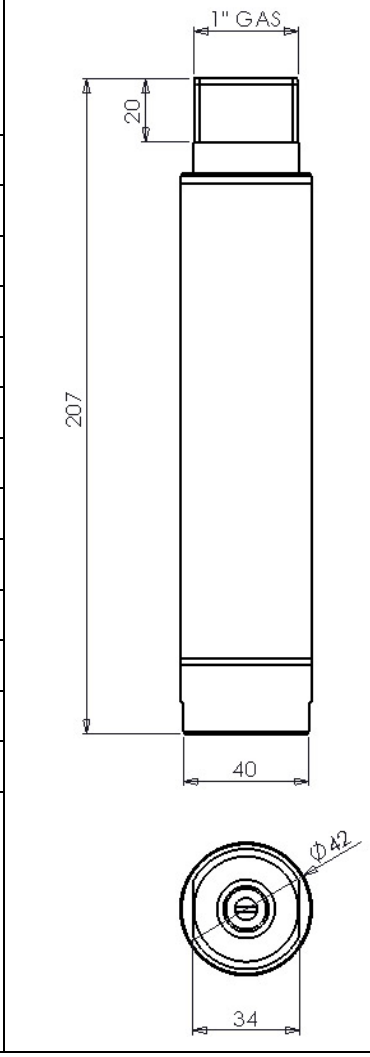
TECHNICAL DATA	DIMENSIONS
Materials : — Black PVC and AISI 316 Body — Special Glass Optics — Viton OR	
Thread: 1" GAS	
Measuring ranges: 0-4, 0-40, 0-400, 0-4000 NTU	
Measuring method: 90° Scattered light	
Accuracy: ± 2% of f.s.	
Ripeatability: 98 %	
Calibration: by points	
WorkingTemperature: 0÷60 °C	
Max Working Pressure: 4 bar	
Mechanical Protection: IP68 Sensor+cable	
Cable: 10m integral	
Power Supply: 12…24Vdc	
Max Absorption: 3W	
Outputs: RS485 (4-20mA optional)	
Cable colors coding RED +24Vdc BLACK GROUND YELLOW A+ RS485 GREEN B- RS 485 WHITE + 4-20 mA BROWN - 4-20 mA	

Order codes

9700590063	S461T turbidity sensor immersion style 10m cable
9720590063	S461T turbidity sensor immersion style 10m cable with RS485 output
9730590063	S461T/INS Turbidity sensor insertion style 10m cable with socket
9740590063	S461T PVC Turbidity sensor immersion style special Oring 10m cable
9750590063	S461T PVC Turbidity sensor immersion style 10m cable RS485 Output
9760590063	S461T AISI316 turbidity sensor immersion style 10m cable
9770590063	S461T turbidity sensor insertion style 10m cable with 4-20mA output

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